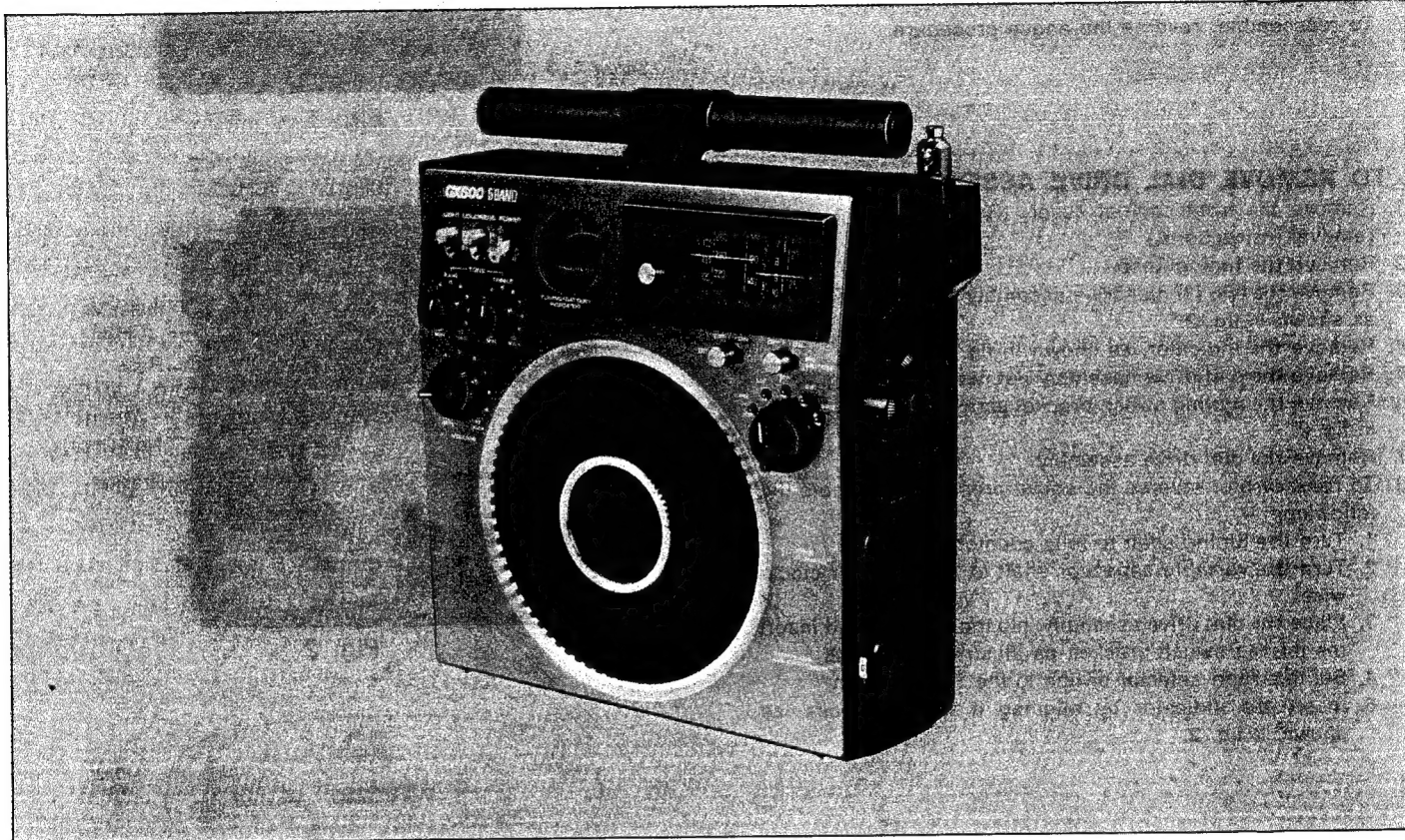


Service Manual

FM-AM 5-BAND
PORTABLE RADIO

Radio
RF-1150LB/LBE
(For England)



■ SPECIFICATIONS

Frequency Range:	FM	87.5~108 MHz	Power Consumption:	6V (Four "D" Size Flashlight Batteries)
	LW	145~355 kHz (2060~845m)		(National UM-1 or equivalent)
	MW	520~1610 kHz (577~186m)		8W (AC Only)
	SW ₁	3.9~12 MHz (76.9~25m)		16cm(6½") PM Dynamic Speaker
	SW ₂	12~30 MHz (25~10m)		246(Wide) × 237(High) ×
Intermediate Frequency:	FM	10.7 MHz	Dimensions:	100(Deep) mm
	AM (MW, LW & SW)	455 kHz		(9⅞" × 9⅜" × 3⅞")
		470 kHz (For England)		2.1kg (4 lb. 10 oz.) without batteries
Sensitivity:	FM	2μV for 50mW Output	Weight:	Speaker8Ω
	LW	50μV/m for 50mW Output		Earphone Jack.....8Ω
	MW	10μV/m for 50mW Output		FM EXT. ANT75Ω
	SW ₁	2μV for 50mW Output		DIN Jack
	SW ₂	3μV for 50mW Output		Phono500kΩ
Power Output:		3.5W Maximum	Impedance:	Rec Out80kΩ
Power Source:		AC 110~125/220~240V 50/60 Hz		
		AC 240V 50 Hz (For England) or		

Specifications are subject to change without notice for further improvement.

■ TO REMOVE CABINET COVER

1. Remove the seven (7) control knobs (VOLUME, BASS, TREBLE, BAND, BFO, MUTING and FM AFC/MW SENS). (To remove those controls, wind a cord around the control and pull it outward.)
2. Remove the battery compartment cover.
3. Remove the four (4) cabinet cover screws (nos. 1~4), as shown in fig. 1.
4. Raise the gyro antenna.
5. Remove both the front and the rear cabinet covers.
6. Remove the sockets for lead wiring to the front and rear cabinet covers.
7. To reassemble, reverse the above procedure.

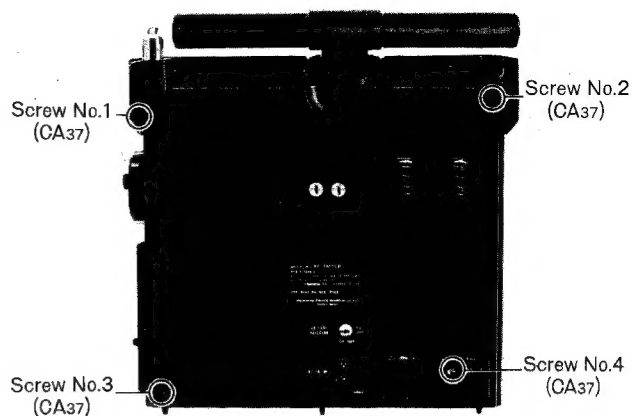


Fig. 1

■ TO REMOVE DIAL DRIVE ASSEMBLY

1. Remove the front cabinet cover. (Refer to cabinet cover removal instructions.)
2. Remove the tuning knob.
3. Remove the two (2) dial drive assembly screws (nos. 1 & 3), as shown in fig. 2.
4. Remove the indicator, as shown in fig. 2.
5. Remove the dial drive assembly nut, as shown in fig. 2.
6. Remove the muting switch bracket screws, no. 2, as shown in fig. 2.
7. Remove the dial drive assembly.
8. To reassemble, reverse the above procedure and note the following:
 1. Turn the tuning shaft to fully counter-clockwise.
 2. Turn the variable capacitor shaft to fully counter clockwise.
 3. Place the dial drive assembly into the chassis, and insert the muting switch bracket, as illustrated in fig. 2.
 4. Set the band selector switch to the SW₁ position.
 5. Insert the indicator by aligning it with the boss, as shown in fig. 2.

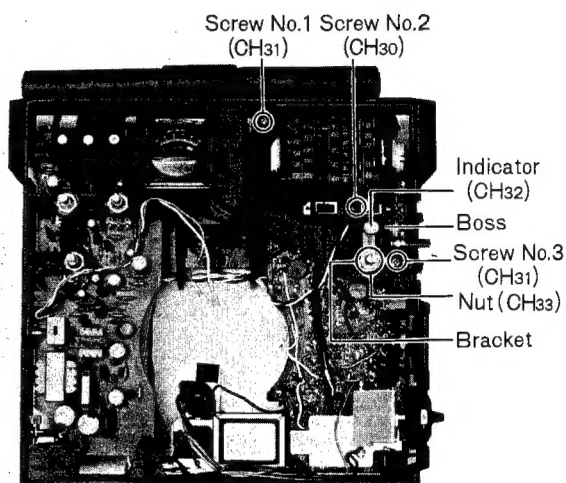


Fig. 2

■ DIAL SCALE INSTALLATION GUIDE

1. Insert the gear (the gear not attached to the shaft) and the spring into roller no. 1, as shown in fig. 3.
2. Fully wrap the dial scale around roller no. 1, as shown in fig. 3.
3. Insert the dial scale into rib of roller no. 2, as shown in fig. 3.
4. Loosen the dial drum screw, as shown in fig. 3.
5. Using a screw-driver, as shown in fig. 3, slightly move the gear of roller no. 1 so that the gear disengages from the center gear, turn three times in the direction of the arrow (being sure to secure roller no. 1 so as to prevent it from also turning), and then engage the gear with the center gear once again.
6. Set the start point of the dial scale with the rib, as shown in fig. 4.
7. Turn the tuning shaft to fully counter-clockwise.
8. Tighten the dial drum screws, as shown in fig. 3.

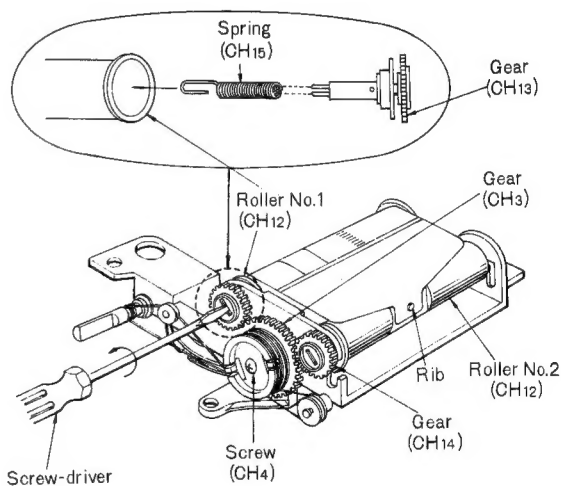


Fig. 3

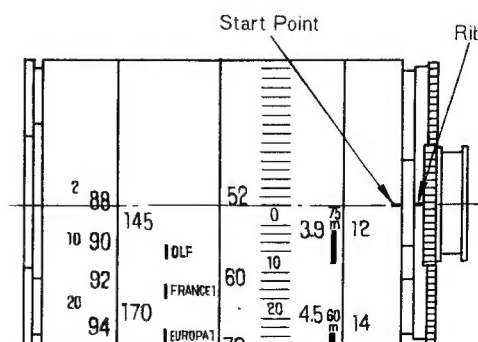


Fig. 4

DIAL CORD INSTALLATION GUIDE

1. Remove the dial drive assembly from the chassis. (Refer to dial drive assembly removal instructions.)
2. Dial cord length is 47 1/4".
3. Loosen the dial drum screw, as shown in fig. 3.
4. Set each dial drum at the position, as shown in fig. 5.
5. Arrows (1~12) indicate correct order and direction of dial cord installation, as shown in fig. 5.
6. Cement dial cord ends.
7. Turn the tuning shaft to fully counter-clockwise.
8. Set the start point of the dial scale with the rib, as shown in fig. 4.
9. Tighten the dial drum screw, as shown in fig. 3.

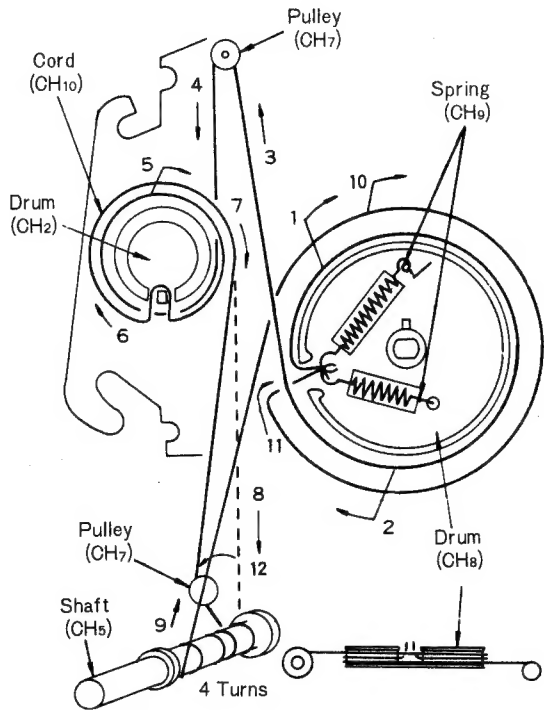


Fig. 5

TO REMOVE GYRO ANTENNA

1. Remove gyro antenna cover in the direction of arrow, as shown in fig. 6.
2. Unsolder lead wires to gyro antenna, as shown in fig. 7.
3. To reassemble, reverse the above procedure.

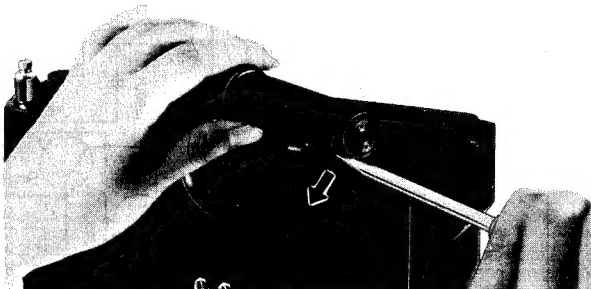


Fig. 6

TO REMOVE GYRO ANTENNA CASE

1. Remove gyro antenna case U ring, as shown in fig. 8.
2. Remove the gyro antenna. (Refer to gyro antenna removal instructions.)
3. Remove the gyro antenna case in the direction of arrow, as shown in fig. 8.
4. To remove gyro antenna case completely, unsolder (on the side of the PC board) lead wires to gyro antenna, as shown in fig. 7.
5. To reassemble, reverse the above procedure.

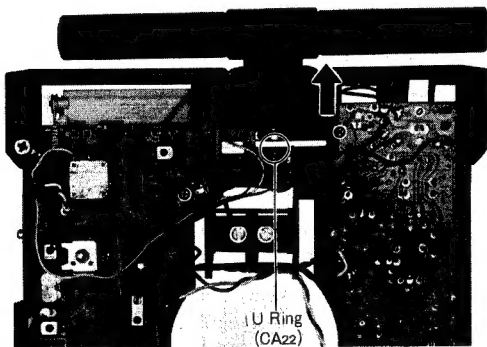


Fig. 8

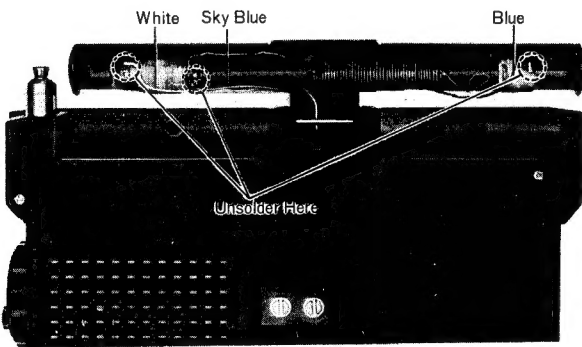
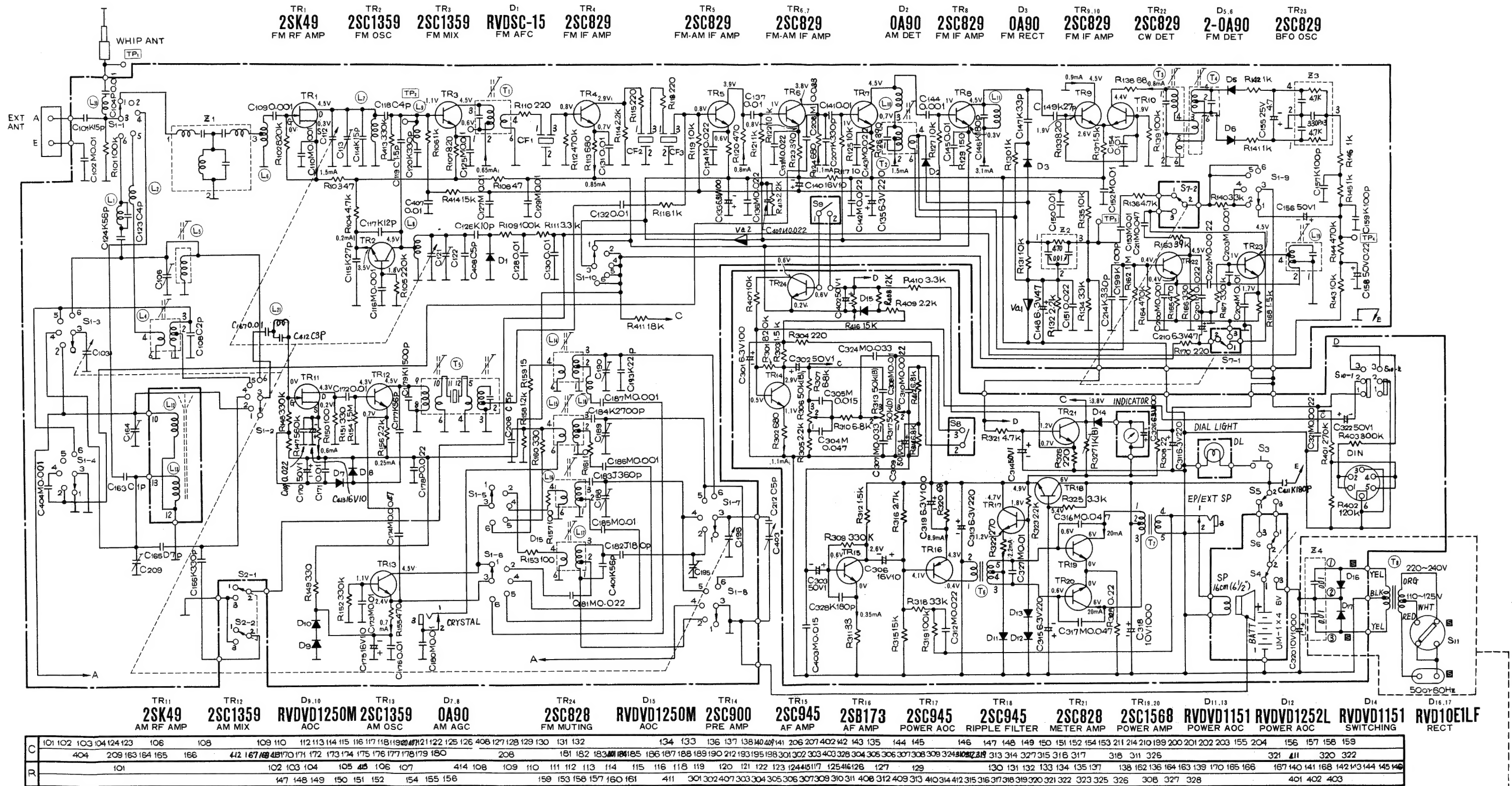


Fig. 7

ALIGNMENT INSTRUCTIONS

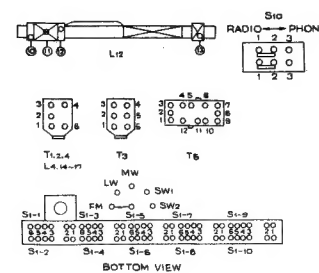
READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT					
Notes: 1. Set volume control to maximum. 2. Set bass & treble controls to maximum. 3. Set band switch to MW, LW, SW ₁ , SW ₂ or FM. 4. Set FM AFC/MW SENS switch to OFF. 5. Set loudness switch to OFF. 6. Set BFO switch to OFF. 7. Set power source voltage to 6 volts DC. 8. Set FM muting switch to OFF. 9. Set fine tuning to center.					
SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING [DISTANCE]	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
CONNECTIONS	FREQUENCY				
LW ALIGNMENT					
Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 470 kHz (England Only) 30% Mod. with 400 Hz.	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T ₅ (1st IFT) T ₂ (2nd IFT)	Adjust for maximum output.
"	145 kHz	145 kHz [Fig. 14]	"	L ₁₇ (OSC Coil) (* 1) L ₁₂ (ANT Coil)	Adjust for maximum output. Adjust L ₁₂ by moving coil bobbin along ferrite core.
"	350 kHz	350 kHz [Fig. 15]	"	C ₁₉₅ (OSC Trimmer) C ₁₆₄ (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
MW ALIGNMENT					
"	550 kHz	550 kHz [Fig. 16]	"	L ₁₆ (OSC Coil) (* 1) L ₁₃ (ANT Coil)	Adjust for maximum output. Adjust L ₁₃ by moving coil bobbin along ferrite core.
"	1500 kHz	1500 kHz [Fig. 17]	"	C ₁₈₈ (OSC Trimmer) C ₂₀₉ (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
(* 1) Cement antenna bobbin with wax after completing alignment.					
SW ₁ ALIGNMENT					
Connect to test point TP ₁ through 10 PF capacitor. Common to earth.	3.9 MHz	3.9 MHz [Fig. 18]	"	L ₁₅ (OSC Coil) L ₄ (ANT Coil)	Adjust for maximum output.
"	12 MHz	12 MHz [Fig. 19]	"	C ₁₈₉ (OSC Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
SW ₂ ALIGNMENT					
Connect to test point TP ₁ through 10 PF capacitor. Common to earth.	12 MHz	12 MHz [Fig. 20]	"	L ₁₄ (OSC Coil) L ₅ (ANT Coil)	Adjust for maximum output.
"	28 MHz	28 MHz [Fig. 21]	"	C ₁₉₀ (OSC Trimmer) C ₁₀₆ (ANT Trimmer)	Adjust for maximum output. Repeat steps (8) and (9).
FM-IF ALIGNMENT					
High side thru. 0.001 μF to point TP ₂ , Common to earth.	10.7 MHz (400 kHz SWP.)	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point TP ₄ , Common to earth.	T ₁ (FM 1st IFT) T ₃ (FM 2nd IFT) (Primary)	Adjust for maximum amplitude and proper linearity between ± 100 kHz markers. (Refer to fig. 11)
"	"	"	"	T ₄ (FM 2nd IFT) (Secondary)	Adjust T ₄ so that 10.7 MHz marker appears at the center. (Refer to fig. 12)
FM-RF ALIGNMENT					
Connect to point TP ₁ through FM dummy antenna. Common to earth. (Refer to fig. 13).	87.2 MHz	Tuning gang fully closed.	Output meter across voice coil.	L ₈ (FM OSC Coil)	(* 2) Adjust for maximum output.
"	90 MHz	Tune to signal.	"	L ₇ (FM DET Coil)	(* 2) Adjust for maximum output.
"	106 MHz	106 MHz [Fig. 22]	"	C ₁₂₂ (FM OSC Trimmer) C ₁₁₃ (FM DET Trimmer)	(* 2) Adjust for maximum output. Repeat steps (12)~(14).
(* 2) Three output responses will be present; proper tuning is the center frequency.					

Schematic Diagram - Model RF-1150LB/LBE

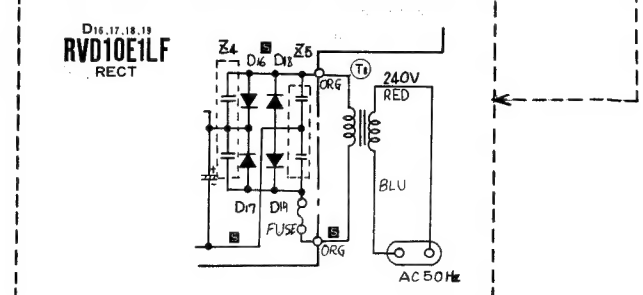


Notes:

- S1-1~S1-10: Band selector in "FM" position.
- S2-1, S2-2: FM AFC/MW SENS switch in "ON" "DX" position.
- S3: Dial light switch in "OFF" position.
- S4: AC-Battery selector in "Battery" position.
- S5: Power switch in "OFF" position.
- S6: Timer switch in "OFF" position.
- S7-1, S7-2: BFO switch in "OFF" position.
- S8: Loudness switch in "OFF" position.
- S9: Muting switch in "OFF" position.
- S10-1, S10-2: Radio-phono selector in "Radio" position.
- S11: Voltage selector in "220~240V" position.
- DC voltage measurements are taken with circuit tester 10kΩ/V from negative side of battery.
- TR1, 2, 3, 4, 8, 9, 10FM position
- TR11, 12, 13MW position
- TR22, 23BFO ON position
- Battery current: No signal 45mA
- Maximum output720mA
- [S] Indicates that only parts specified by the manufacturer be used for replacement in critical circuits.



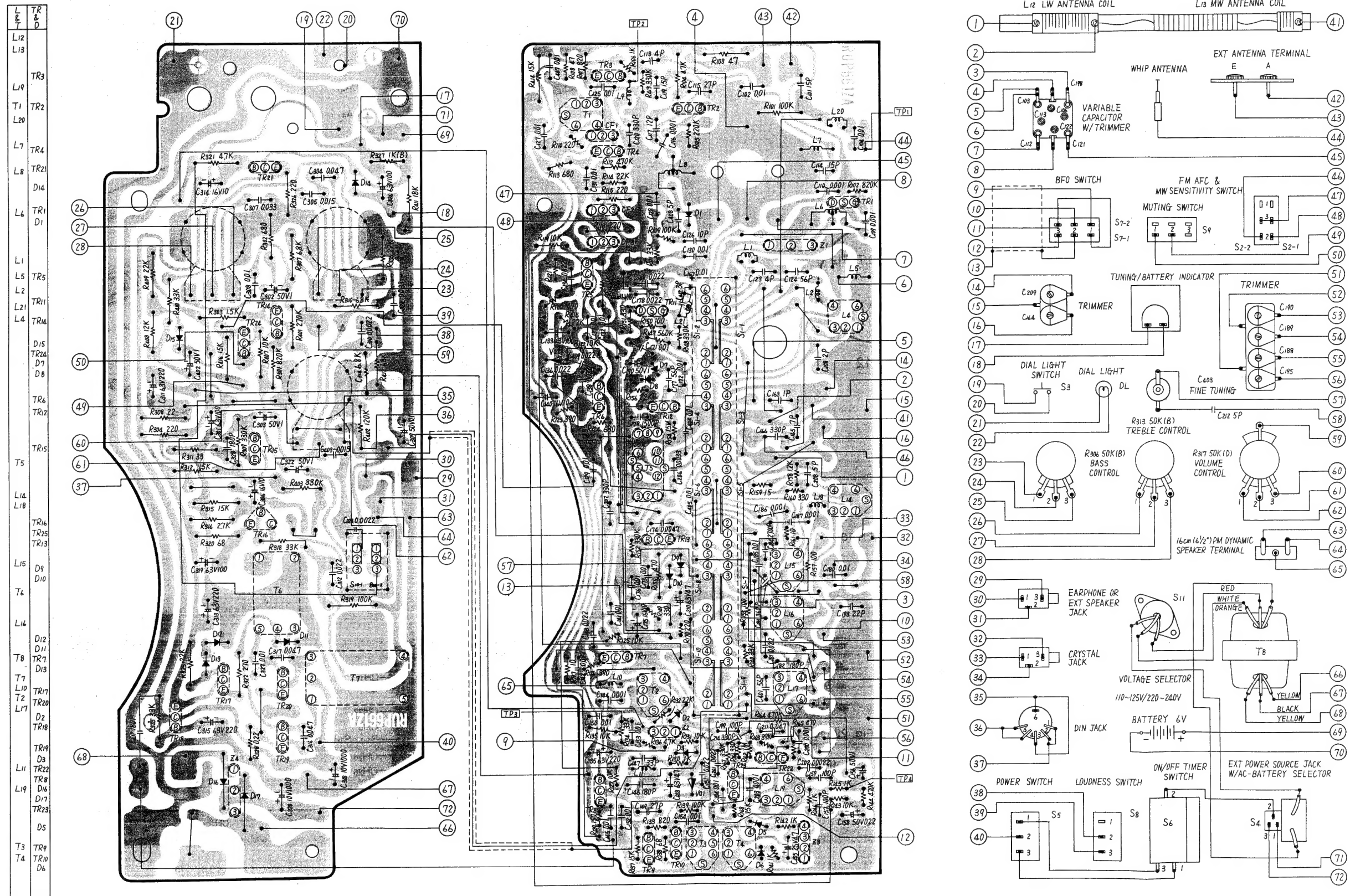
RF-1150LBE
(For England)



Circuit Board Wiring View-Model RF-1150LB/LBE

TR ₁		TR ₂		TR ₃		TR ₄		TR ₅		TR ₆		TR ₇		TR ₈		TR ₉		TR ₁₀		TR ₁₁		TR ₁₂		TR ₁₃		TR ₁₄		TR ₁₅		TR ₁₆	
	FM		FM		FM		FM		3.9V		3.8V		4.5V		FM		FM		FM		MW		MW		MW		2.9V		2.6V		0.4V
D	4.5V	C	4.5V	C	4.5V	C	2.9V	C	0.8V	C	1 V	C	1 V	C	4.5V	C	4.5V	C	4.4V	D	4.3V	C	4.5V	C	4.5V	B	0.5V	C	0.6V	B	4.1V
Q	0 V	B	1.8V	B	1.1V	B	0.8V	B	0.8V	B	1 V	B	1 V	B	1.9V	B	1.9V	B	1.9V	G	0 V	B	4.3V	B	1.1V	E	1.1V	E	0 V	E	4.3V
S	0.3V	E	3.5V	E	0.6V	E	0.7V	E	0.6V	E	0.8V	E	0.7 V	E	0.3V	E	2.6V	E	2.6V	S	0.2V	E	0.7V	E	2.4V	Ie	1.1mA	Ie	0.35mA	Ie	8.9mA
I _s	1.5mA	I _e	0.2mA	I _c	0.65mA	I _e	0.85mA	I _c	0.8mA	I _c	1.1mA	I _c	1.5mA	I _c	3.1mA	I _c	0.9mA	I _c	0.8mA	I _s	0.6mA	I _e	0.25mA	I _e	0.7mA						

TR ₁₇		TR ₁₈		TR ₁₉		TR ₂₀		TR ₂₁		TR ₂₂		TR ₂₃		TR ₂₄	
C	4.7V	C	6 V	C	6 V	C	6 V	C	3.8V		BFO ON		BFO ON	C	0.6V
B	1.8V	B	5.4V	B	0.6V	B	0.6V	B	1.2V	C	4.5V	C	4.5V	B	0.6V
E	1.2V	E	4.9V	E	0 V	E	0 V	E	0.7V	B	0.4V	B	1 V	E	0.2V
I _e	2.2mA			I _e	20mA		20mA	I _e	20mA	E	0.4V	E	1.7V		



1. Set band switch to MW.		2. Set BFO switch to ON.			
SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING [DISTANCE]	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
CONNECTIONS	FREQUENCY				
BFO ALIGNMENT					
Fashion loop of several turns of wire and radiate signal into loop of receiver.	435.5 kHz	Point of non-interference. (on/about 600 kHz)	Audio output from speaker.	L ₁₉ (BFO OSC Coil)	Adjust for zero beat.

BATTERY/TUNING METER ADJUSTMENT

1. RADIO RECEIVER SETTING

- Set band switch to MW.
- Set volume control to minimum.
- Set power source voltage to 6 volts DC.

2. REMARKS

- Adjust R₃₂₇ so that the pointer of level meter stays as shown in figure Fig. 9

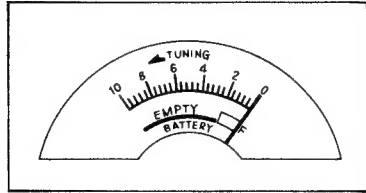


Fig. 9

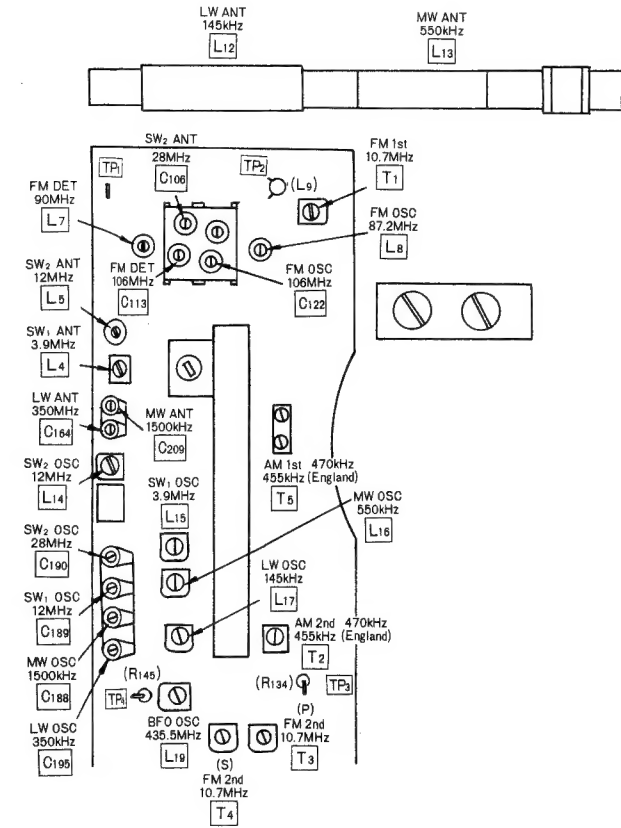


Fig. 10 Alignment Points

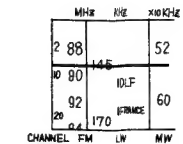


Fig. 14 (145 kHz)

(LW)

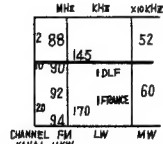


Fig. 16 (550 kHz)

(MW)

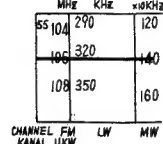


Fig. 18 (3.9 MHz)

(SW₁)

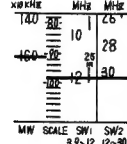


Fig. 20 (12 MHz)

(SW₂)

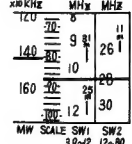


Fig. 22 (106 MHz)

(FM)

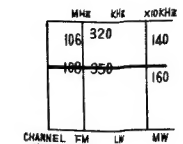


Fig. 15 (350 kHz)

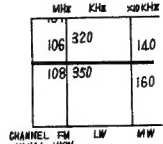


Fig. 17 (1500 kHz)

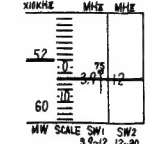


Fig. 19 (12 MHz)

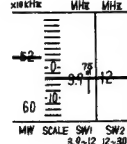


Fig. 21 (28 MHz)

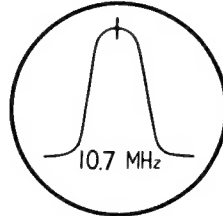


Fig. 11

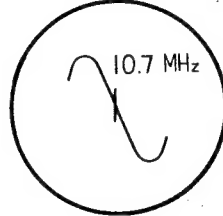


Fig. 12

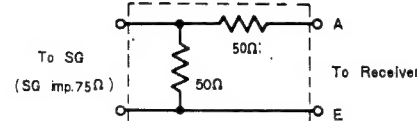


Fig. 13 FM Dummy Antenna

CABINET PARTS LOCATIONS

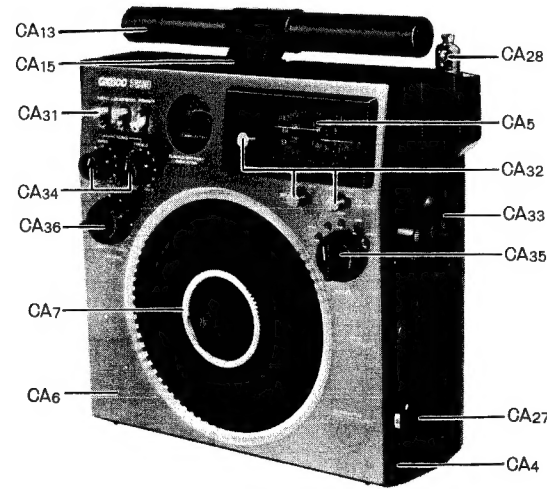


Fig. 23

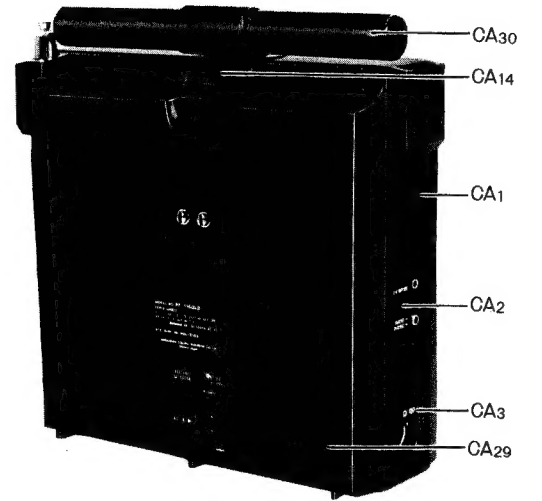


Fig. 24

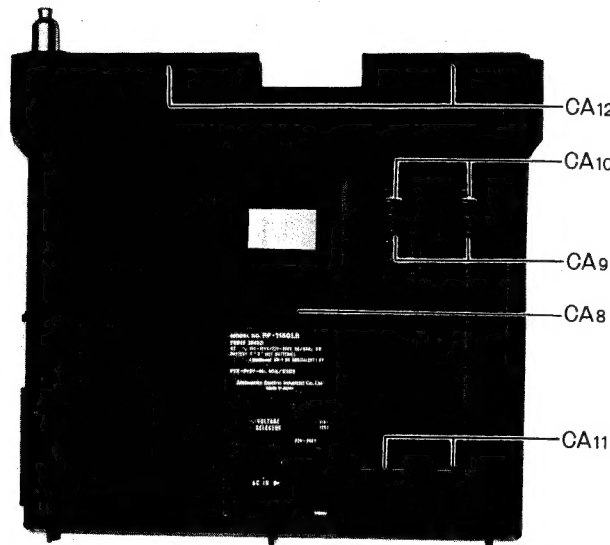


Fig. 25

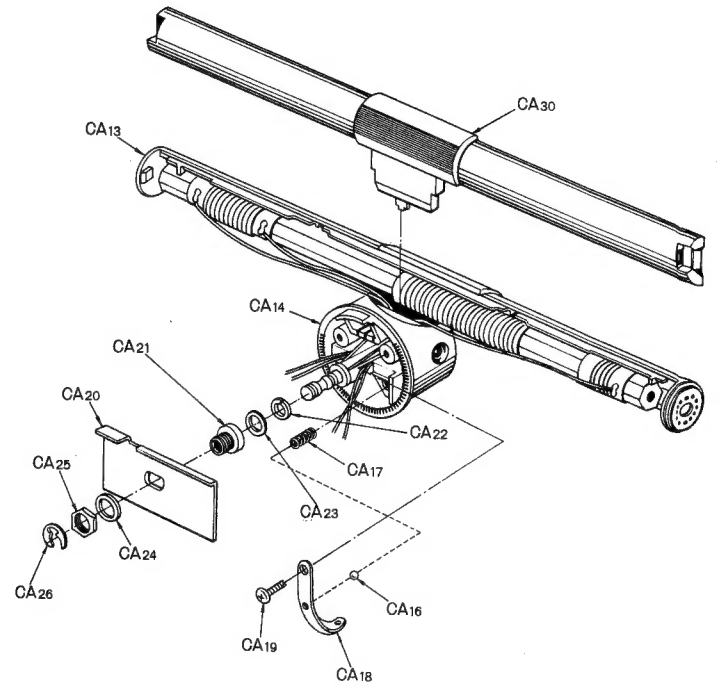


Fig. 26

CHASSIS PARTS LOCATIONS

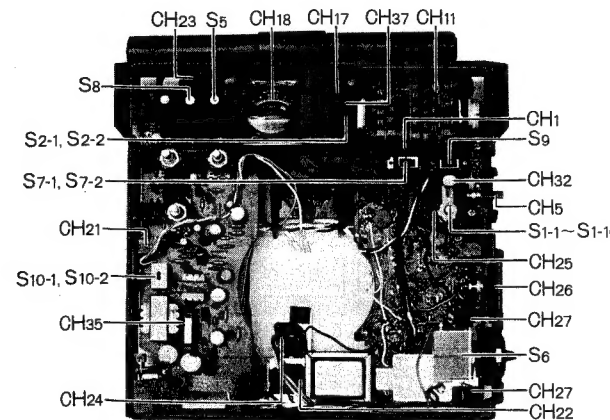


Fig. 27

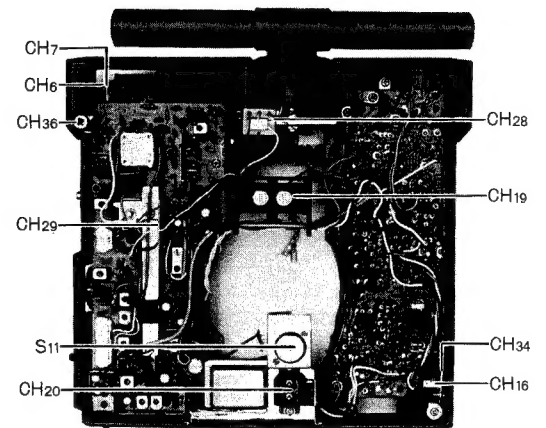
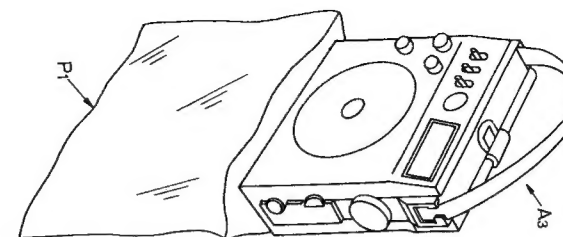


Fig. 28

REPLACEMENT PARTS LIST Model RF-1150LB/LBE

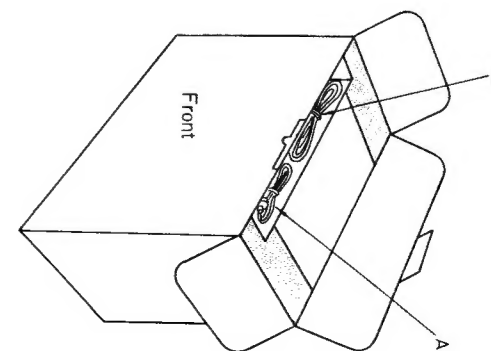
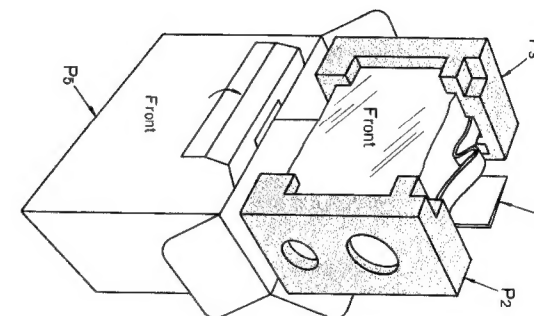
NOTES : 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. **X-Z rank:** X rank parts will cover 80% of repair needs.
X+Y rank parts will cover 95% of repair needs.
Z rank parts are less necessary.
3. **SAFETY** indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
TRANSISTORS AND DIODES				
TR1,11	2SK49	FM RF Amplifier, AM RF Amplifier	2	X
TR2,3,12,13	2SC1359	FM Oscillator, FM Mixer, AM Mixer, AM Oscillator	4	X
TR4,5,6,7,8,9,10,22,23	2SC829	FM-AM IF Amplifier, CW Detector, BFC Oscillator	9	X
TR14	2SC900	Pre-Amplifier	1	X
TR15,17,18	2SC945	AF Amplifier, Power Operation Compensator, Ripple Filter	3	X
TR16	2SB173	AF Amplifier	1	X
TR19,20	2SC1568	Power Amplifier	2	X
TR21,24	2SC828	Meter Amplifier, FM Muting	2	X
D1	RVDSO-15	FM AFC	1	X
D2,3,7,8	0A90	AM Detector, FM Rectifier, AM AGC	4	X
D5,6	2-0A90	FM Detector	1 Pair	X
D9,10,15	RVDVD1250M	Operation Compensator	3	X
D11,13,14	RVDVD1151	Power Operation Compensator, Switching	3	X
D12	RVDVD1252L	Power Operation Compensator	1	X
D16,17	RVD10E1LF	Rectifier	2	SAFETY X
D18,19	RVD10E1LF	Rectifier(For England)	2	SAFETY X
VARIATITES				
Va1,2	EYV320D1R2J2	Operation Compensator	2	X
CERAMIC FILTERS, COILS AND TRANSFORMERS				
CF1,2,3	RVFCF10S12CR	Ceramic Filter	3	X
L1	RLQY75S5-0	Choke Coil	1	Y
L2	RLQY25S5-0	Choke Coil	1	Y
L4	RLA3M15-K	SW1 Antenna Coil	1	X
L5	RLA3N13-0	SW2 Antenna Coil	1	X
L6	RLA4Y6-0	FM Antenna Coil	1	X
L7	RLD4N30	FM Detector Coil	1	X
L8	RL04N22-0	FM Oscillator Coil	1	X
L9,10	RLQZ68S1-Y	Choke Coil	2	Y
L11	RLQY15G5-0	Choke Coil	1	Y
L12,13	RLF6X4-0	LW & MW Antenna Coil	1	X
L14	RL03M24-M	SW2 Oscillator Coil	1	X
L15	RL03M22-M	SW1 Oscillator Coil	1	X
L16	RL02M11	MW Oscillator Coil	1	X
L17	RL01M1	LW Oscillator Coil	1	X



PACKING MATERIALS

Fig. 29



Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
L18,20	RLQY15S5-0	Choke Coil	2	Y
L19	RL09M2-M	BFO Oscillator Coil	1	○ X
L21	RLQY75S2-0	Choke Coil	1	Y
T1	RL14M301	FM 1st IF Transformer	1	X
T2	RL12M402	AM 2nd IF Transformer	1	X
T3	RL14M501	FM 2nd IF Transformer, Primary	1	X
T4	RL14M502	FM 2nd IF Transformer, Secondary	1	X
T5	RL17W112-T	AM 1st IF Transformer	1	X
T5	RL17W113-T	AM 1st IF Transformer, (For England)	1	○ X
T6	RLT3F30-V	Input Transformer, P=700Ω:S=1KΩ	1	X
T7	RLT2H32-V	Output Transformer, P=20Ω:S=8Ω	1	○ X
T8	RLT5J182-W	Power Transformer	1	○ SAFETY X
T8	RLT5J183-W	Power Transformer(For England)	1	○ SAFETY X
VARIABLE RESISTORS				
R306,313	RVV54B36-A	50KΩ (B), Bass & Treble Control	2	○ X
R317	RVV54D45-A	50KΩ (D), Volume Control	1	○ X
R327	EVLT0AA00B13	1KΩ (B), Meter Control	1	X
VARIABLE CAPACITORS				
C164,209	RCV2T-16M	Trimmer	1	X
C188,189,190,195	RCV4T-16M	Trimmer	1	X
C103,112,121,198	PVC22K20TM	Variable Capacitor, W/Trimmer (C106,113,122)	1	X
C403	RCVFT1-10-2	Variable Capacitor, Fine Tuning	1	Y
COMPONENT COMBINATIONS				
Z1	RXABPF10801H	Coils & Capacitors	1	Y
Z2	EXAF203Z471R	0.01μF × 2, 470Ω	1	Y
Z3	EXA5DL040C	330PF × 3, 4.7KΩ × 2	1	Y
Z4	EXNF2SL04C	0.01μF × 2	1	SAFETY Y
Z5	EXNF2SL04C	0.01μF × 2(For England)	1	SAFETY Y
SPEAKER				
SP	EAS16P91SM	16cm(6½") PM Dynamic Speaker, Imp.8Ω	1	○ X
SWITCHES				
S1-1~S1-10	RSR98YK-P	Band Selector	1	○ X
S2-1,S2-2,S7-1	RSS140Y-G	FM AFC/MW SENS,BFO & Muting Switch	3	○ X
S7-2,S9				
S5	RST65Z-F	Power Switch	1	X
S6	RSE50Z-T	Timer Switch	1	X
S8	RST65Y-F	Loudness Switch	1	○ X
S10-1,S10-2	RSS61X-H	Radio-Phono Selector	1	X
S11	RSR12A	Voltage Selector	1	SAFETY X

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
RESISTORS				
R163	ERD18VJ393	39KΩ, ¼Watt, ±5%, Carbon	1	Z
R154	ERD18VJ155	1.5MΩ, ¼Watt, ±5%, Carbon	1	Z
R161,117	ERD18VJ100	10Ω, ¼Watt, ±5%, Carbon	2	Z
R159	ERD18VJ150	15Ω, ¼Watt, ±5%, Carbon	1	Z
R108	ERD18VJ470	47Ω, ¼Watt, ±5%, Carbon	1	Z
R138	ERD18VJ680	68Ω, ¼Watt, ±5%, Carbon	1	Z
R150	ERD18VJ101	100Ω, ¼Watt, ±5%, Carbon	1	Z
R129	ERD18VJ151	150Ω, ¼Watt, ±5%, Carbon	1	Z
R110,115,170	ERD18VJ221	220Ω, ¼Watt, ±5%, Carbon	3	Z
R149,151,160,166	ERD18VJ331	330Ω, ¼Watt, ±5%, Carbon	4	Z
R120,165	ERD18VJ471	470Ω, ¼Watt, ±5%, Carbon	2	Z
R113,124	ERD18VJ681	680Ω, ¼Watt, ±5%, Carbon	2	Z
R106,121,130,141,142	ERD18VJ102	1KΩ, ¼Watt, ±5%, Carbon	5	Z
R137,168	ERD18VJ152	1.5KΩ, ¼Watt, ±5%, Carbon	2	Z
R114,132,156,415	ERD18VJ222	2.2KΩ, ¼Watt, ±5%, Carbon	4	Z
R111	ERD18VJ332	3.3KΩ, ¼Watt, ±5%, Carbon	1	Z
R136	ERD18VJ472	4.7KΩ, ¼Watt, ±5%, Carbon	1	Z
R119,122,125,127,131,135,143	ERD18VJ103	10KΩ, ¼Watt, ±5%, Carbon	7	Z
R140	ERD18VJ333	33KΩ, ¼Watt, ±5%, Carbon	1	Z
R109,139	ERD18VJ104	100KΩ, ¼Watt, ±5%, Carbon	2	Z
R105	ERD18VJ224	220KΩ, ¼Watt, ±5%, Carbon	1	Z
R148,152,167,413	ERD18VJ334	330KΩ, ¼Watt, ±5%, Carbon	4	Z
R112,144	ERD18VJ474	470KΩ, ¼Watt, ±5%, Carbon	2	Z
R102	ERD18VJ824	820KΩ, ¼Watt, ±5%, Carbon	1	Z
R147	ERD18VJ564	560KΩ, ¼Watt, ±5%, Carbon	1	Z
R162	ERD18VJ105	1MΩ, ¼Watt, ±5%, Carbon	1	Z
R158	ERD18VJ122	1.2KΩ, ¼Watt, ±5%, Carbon	1	Z
R107,133	ERD18VJ821	820Ω, ¼Watt, ±5%, Carbon	2	Z
R123,126	ERD18VJ391	390Ω, ¼Watt, ±5%, Carbon	2	Z
R402	ERD18SJ124	120KΩ, ¼Watt, ±5%, Carbon	1	Z
R164	ERD18TJ474	470KΩ, ¼Watt, ±5%, Carbon	1	Z
R153,157	ERD18TJ101	100Ω, ¼Watt, ±5%, Carbon	2	Z
R311	ERD18SJ330	33Ω, ¼Watt, ±5%, Carbon	1	Z
R103	ERD18SJ470	47Ω, ¼Watt, ±5%, Carbon	1	Z
R320	ERD18SJ680	68Ω, ¼Watt, ±5%, Carbon	1	Z
R118,304,326	ERD18SJ221	220Ω, ¼Watt, ±5%, Carbon	3	Z
R155	ERD18SJ471	470Ω, ¼Watt, ±5%, Carbon	1	Z
R302	ERD18SJ681	680Ω, ¼Watt, ±5%, Carbon	1	Z
R116	ERD18SJ102	1KΩ, ¼Watt, ±5%, Carbon	1	Z
R303,312	ERD18SJ152	1.5KΩ, ¼Watt, ±5%, Carbon	2	Z
R305,323,409	ERD18SJ222	2.2KΩ, ¼Watt, ±5%, Carbon	3	Z
R325,410	ERD18SJ332	3.3KΩ, ¼Watt, ±5%, Carbon	2	Z
R104,321	ERD18SJ472	4.7KΩ, ¼Watt, ±5%, Carbon	2	Z
R307,310,314,412	ERD18SJ682	6.8KΩ, ¼Watt, ±5%, Carbon	4	Z
R407	ERD18SJ103	10KΩ, ¼Watt, ±5%, Carbon	1	Z
R315,414,416	ERD18SJ153	15KΩ, ¼Watt, ±5%, Carbon	3	Z
R318	ERD18SJ333	33KΩ, ¼Watt, ±5%, Carbon	1	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R101,319	ERD18SJ104	100K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	2	Z
R309,403	ERD18SJ334	330K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	2	Z
R322	ERD18SJ271	270K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R301	ERD18SJ824	820K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R308	ERD18SJ220	22 Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R401	ERD18SJ274	270K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R316	ERD18SJ272	2.7K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R408	ERD18SJ123	12K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R411	ERD18SJ183	18K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R328	ERX12ANJR22U	0.22 Ω , $\frac{1}{2}$ Watt, $\pm 5\%$, Metal Oxide	1	Z
R134	ERD18TJ333	33K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	1	Z
R145,146	ERD18TJ102	1K Ω , $\frac{1}{8}$ Watt, $\pm 5\%$, Carbon	2	Z

CAPACITORS

C163	ECCD1H0100	1PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C108	ECCD1H0200	2PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C118,123	ECCD1H0400	4PF, 50WV, ± 0.25 PF, Ceramic	2	Z
C212	ECCD1H0500C	5PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C165	ECCD1H0700C	7PF, 50WV, ± 0.5 PF, Ceramic	1	Z
C117	ECCD1H120K0	12PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C146,328,411	ECCD1H181K	180PF, 50WV, $\pm 10\%$, Ceramic	3	Z
C124,177,401	ECCD1H560K	56PF, 50WV, $\pm 10\%$, Ceramic	3	Z
C157,159,199	ECCD1H101K	100PF, 50WV, $\pm 10\%$, Ceramic	3	Z
C120,166,207,214	ECCD1H331K	330PF, 50WV, $\pm 10\%$, Ceramic	4	Z
C408	ECCD1H050CW	5PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C119	ECCD1H1R5C	1.5PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C101,114	ECCD1H150K0	15PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C115,149	ECCD1H270K0	27PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C147	ECCD1H330K0	33PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C126	ECCD1H100K0	10PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C193	ECCD1H220KW	22PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C144	ECKD1H102PF	0.001 μ F, 50WV, $\pm 100\%$, Ceramic	1	Z
C104,128,130,131,132,137,141,145,150,154,167,171,172,176,407	ECKE1H103PF	0.01 μ F, 50WV, $\pm 100\%$, Ceramic	15	Z
C110,116,186,187,200,203	ECKE1H102MD	0.001 μ F, 50WV, $\pm 20\%$, Ceramic	6	Z
C109	ECKE1H102PF	0.001 μ F, 50WV, $\pm 100\%$, Ceramic	1	Z
C151,178	ECKE1H223PF	0.022 μ F, 50WV, $\pm 100\%$, Ceramic	2	Z
C202,310,321	ECKE1H222MD	0.0022 μ F, 50WV, $\pm 20\%$, Ceramic	3	Z
C102,125,127,129,152,153,173,180,185,204,308,327,404	ECKE1H103MD	0.01 μ F, 50WV, $\pm 20\%$, Ceramic	13	Z
C134,136,138,142,143,169,181,201,312,409	ECKE1H223MD	0.022 μ F, 50WV, $\pm 20\%$, Ceramic	10	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C305,403	ECKE1H153MD	0.015 μ F, 50WV, $\pm 20\%$, Ceramic	2	Z
C182	ECMS05181J-H	180PF, 50WV, $\pm 5\%$, Mica	1	Z
C183	EQQS1361JZ	360PF, 125WV, $\pm 5\%$, Styrol	1	Z
C179	EQQS1152KZ	1500PF, 125WV, $\pm 10\%$, Styrol	1	Z
C184	EQQS05272KZ	2700PF, 50WV, $\pm 10\%$, Styrol	1	Z
C211,304,316,317	ECQG05473MZ	0.047 μ F, 50WV, $\pm 20\%$, Polyester	4	Z
C307,324	ECQG05333MZ	0.033 μ F, 50WV, $\pm 20\%$, Polyester	2	Z
C158	ECEA50ZR22	0.22 μ F, 50WV, Electrolytic	1	Y
C309	ECEA50ZRI	0.1 μ F, 50WV, Electrolytic	1	Y
C148	ECEA6V47E	47 μ F, 6.3WV, Electrolytic	1	Y
C133,301,319,326	ECEA6V100E	100 μ F, 6.3WV, Electrolytic	4	Y
C135,311,313,315	ECEA6V220E	220 μ F, 6.3WV, Electrolytic	4	Y
C210	ECEA6V47	47 μ F, 6.3WV, Electrolytic	1	Y
C318,320	ECEA10V1000E	1000 μ F, 10WV, Electrolytic	2	Y
C140,175,306	ECEA16V10E	10 μ F, 16WV, Electrolytic	3	Y
C155	ECEA25V4R7E	4.7 μ F, 25WV, Electrolytic	1	Y
C302,303,314,322,402	ECEA50V1E	1 μ F, 50WV, Electrolytic	5	Y
C156,170	ECEA50V1	1 μ F, 50WV, Electrolytic	2	Y
C412	ECCD1H0300	3PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C208	ECCD1H0500C	5PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C413	ECEA16V10	10 μ F, 16WV, Electrolytic	1	Y
C174	ECKE1H472MD	0.0047 μ F, 50WV, $\pm 20\%$, Ceramic	1	Z
C206	ECKE1H332MD	0.0033 μ F, 50WV, $\pm 20\%$, Ceramic	1	Z

CABINET

CA1	→RYMF1150LBX (Not Available, Order) RYMF1150LBX	Cabinet Assembly Cabinet Body Only	1 (1)	○ Z
CA2	RGK646Y	Indicating Plate, RADIO, PHONO Mark	1	○ Z
CA3	RGK658Z	Indicating Plate, Phono & Din Jack	1	○ Z
CA4	→RYF1F1150LBX	Cabinet Front Cover Assembly	1	○ Y
CA5		Front Cover Only	(1)	
CA6	Not Available, Order RYF1F1150LBX	Panel, Dial Indicating Plate, GX600,5BAND, etc Mark	(1) (1)	
		Net(Large), Speaker	(1)	
		Net(Small), Speaker	(1)	
		Ornament, Speaker	(1)	
CA7	→RYF2F1150LBX	Cabinet Back Cover Assembly	1	○ Y
CA8	(Not Available, Order) RYF2F1150LBX	Back Cover Only	(1)	
CA9	RJC507Z	Spring, Battery ⊖ Side	2	Y
CA10	RJT398A	Connecting Pipe, Spring	2	Z
CA11	RJC205B	Terminal, Battery ⊕ Side	2	Y
CA12	RHG307A	Rubber Cushion, Gyro Antenna	2	Z
	→RYEF1150M	Gyro Antenna Case Assembly	1	○ Y
CA13		Case Only	(1)	
CA14	(Not Available, Order) RYEF1150M	Base, Gyro Antenna Case	(1)	
		Shaft, Gyro Antenna Case	(1)	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CA15	RGK653Z	Indicating Plate	1	○ Z
CA16	RHE25Z	Steel Ball	1	Z
CA17	RUS204Z	Spring, Steel Ball	1	Z
CA18	RUL336Z	Bracket, Steel Ball	1	Z
CA19	XTN3+8B	Screw, Bracket M'tg	1	Z
CA20	RUL389Z	Bracket, Gyro Antenna Case	1	Z
CA21	RDX310Z	Shaft, Gyro Antenna Case	1	○ Z
CA22	XWA5B	Washer, Gyro Antenna Case	1	Z
CA23	XWE5D	Washer, Gyro Antenna Case	1	Z
CA24	XWS8AW	Washer, Gyro Antenna Case	1	Z
CA25	XNS8	Nut, Gyro Antenna Case	1	Z
CA26	XUE5FP	U Ring, Gyro Antenna Case	1	Z
CA27	RYTF1150M (Not Available, Order) RYTF1150M	Timer Knob Assembly Knob Only Spring, Knob	1 (1) (1)	○ Y
CA28	XEART196FBY RMA136Z	Whip Antenna, 6 Steps 1044mm Bracket, Whip Antenna	1 1	○ X Z
CA29	RKK102Z	Cover, Battery Compartment	1	○ X
CA30	RKE140Z	Cover, Gyro Antenna	1	Y
CA31	RBC105Z	Button, Dial Light Switch	1	○ Z
CA32	RBD49Y	Knob, AFC, BFO & Muting Switch	3	○ X
CA33	RBN314Z	Knob, Tuning	1	○ X
CA34	RBN315Z	Knob, Bass & Treble	2	○ X
CA35	RBS92ZK	Knob, Band Selector	1	○ X
CA36	RBS98Z	Knob, Volume	1	○ X
	XWVR10	Washer, Whip, Antenna	1	Z
	RHR750Z	Insulating Plate, Whip Antenna	1	Z
CA37(Fig.1)	XTB3+50BFN	Screw, Cabinet Cover M'tg	4	Y
	RGT478Y	Name Plate(Small), (For England)	1	○ Z
	RGT478Z	Name Plate(For Italy)	1	○ Z
	RGT479Z	Name Plate(Large), (For England)	1	○ Z
CHASSIS				
CH1	RYDF1150LBX (Not Available, Order) RYDF1150LBX	Dial Scale Assembly Base Only	1 (1)	○ Y
CH2(Fig.5)	RDD200Z	Drum(Small), Dial	1	○ Y
CH3(Fig.3)	RDG5639Z	Gear, Dial Drum(RDD200Z)	1	○ Y
CH4(Fig.3)	XTW3+10E	Screw, Dial Drum M'tg	1	Z
	XWC3B	Washer, Dial Drum M'tg	1	Z
CH5	RDT1251Z	Shaft, Tuning	1	○ Z
	XNGR6	Nut, Tuning Shaft M'tg	1	Z
	XWE6D10	Washer, Tuning Shaft M'tg	1	Z
	XWA6B	Washer, Tuning Shaft M'tg	1	Z
	XUC4FW	E Ring, Gear(RDG5639Z) M'tg	1	Z
CH6	RDY31A	Shaft, Pulley	2	Z
CH7	RDR20-3	Pulley, Dial	2	Z
CH8(Fig.5)	RDD410Y	Drum(Large), Dial	1	○ Y
CH9(Fig.5)	RDS4060A	Spring, Drum	2	Y
CH10(Fig.5)	RDZ05A	Cord(500m), Dial	1 Roll	Y
CH11	RKD356W	Scale, Dial	1	○ Y
CH12(Fig.3)	RDF971Z	Roller, Dial Scale	2	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CH13(Fig.3)	RDG5638Y	Gear, Dial Scale Shaft(Low Frequency Side)	1	○ Z
CH14(Fig.3)	RDG5638Z	Gear, Dial Scale, Shaft(High Frequency Side)	1	○ Z
CH15(Fig.3)	RDS5201Z RXEF1150N (Not Available, Order) RXEF1150N	Spring Gear(RDG5638Z) Gyro Antenna Stopper Assembly Stopper Only Bracket, Stopper	1 1 (1) (1)	Y ○ Z
CH16	RJS75Z-H	Din Jack, Phono & Tape	1	X
CH17	XAMR96T150B	Pilot Lamp, Dial Light, 6V, 0.1A	1	○ X
CH18	RSM2605B-K	Meter, Tuning & Battery Indicator	1	X
CH19	RJF1044Y	Terminal, EXT. Antenna	1	○ Y
CH20	RJJ30Z-H	Jack, EXT. Power Source	1	SAFETY Y
CH21	RJJ87Y-C	Jack, Crystal & Earphone	1	X
	RJT463Z	Spring, Dial Light Switch	1	○ Z
CH22	RJE10Z	Cover, EXT. Power Source Jack	1	SAFETY Z
CH23	RUV409Z	Cover, Power & Loudness Switch	1	○ Z
CH24	RUV98A	Cover, Voltage Selector	1	Z
CH25	RMW119Z	Bracket, Muting Switch	1	Z
CH26	RBT75Z	Knob, Fine Tuning	1	Z
CH27	RHG990Z	Rubber Cushion, Timer	2	○ Z
CH28	RHR132Z	Holder(Small), Antenna Lead Wires	1	○ Z
CH29	RHR133Z	Holder(Large), Antenna Lead Wires	1	○ Z
	XSN2+4	Screw, Muting Switch M'tg	1	Z
CH30(Fig.2)	XSN2+5	Screw, AFC, Muting & BFO Switch M'tg	3	Z
	XSN26+6	Screw, Variable Capacitor M'tg	2	Z
CH31(Fig.2)	XTN3+10B	Screw, Dial Scale Assembly M'tg	3	Z
CH32	RGX651Z	Indicator, Band Selector	1	Z
CH33(Fig.2)	XNS8	Nut, Bracket M'tg	1	Z
CH34	RMK91ZS RJR18B	Bracket, Din Jack Lead Holder(1 Terminal), P.C. Board	1 1	○ Z Z
	RUV217A	Cover, Radio-Phono Selector	1	Z
CH35	RMV75Z	Heat Sink, Transistor	1	Z
	XBA2C08TRO	Fuse, (For England)	1	SAFETY Y
	RJF7A	Holder, Fuse, (For England)	2	SAFETY Y
CH36	RJT514Z	Terminal, Whip Antenna	1	○ Z
CH37	RUV364Z	Cover, AFC Switch	1	○ Z
	RHR797Z	Cushion, Core Antenna	2	○ Z
ACCESSORIES				
A1	XEH1A1	Magnetic Earphone	1	Y
A2	RJA20Z-K	AC Cord, Power Source	1	SAFETY Y
A2	RJA43Z-K	AC Cord, Power Source(For England)	1	SAFETY Y
A3	RQC9011Z	Belt	1	○ Z
PACKING MATERIALS				
P1	RPP168Z	Polyethylene Cover	1	Z
	RPN9176Z	Pad Complete	1	○ Z
P2	(Not Available, Order)	Pad, Right Side	(1)	
P3	RPN9176Z	Pad, Left Side	(1)	
P4	RQX5894Z	Instruction Book	1	○ Y
P5	RPG1507Z	Packing Case	1	○ Z